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Structure attributes must be viewed using STN Express query preparation.

L6 14539 SEA FILE=REGISTRY SSS FUL L4

L7 0 SEA FILE=REGISTRY ABB=ON PLU=ON L3 AND L6

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FILE COVERS 1907 - 18 Mar 2010 VOL 152 ISS 12 FILE LAST UPDATED: 17 Mar 2010 (20100317/ED) REVISED CLASS FIELDS (/NCL) LAST RELOADED: Dec 2009 USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Dec 2009 CAplus now includes complete International Patent Classification (IPC) reclassification data for the first quarter of 2010.

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L8 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2008:1319707 CAPLUS

DOCUMENT NUMBER: 149:576715

TITLE: Competing C-F Activation Pathways in the Reaction of

Pt(0) with Fluoropyridines: Phosphine-Assistance

versus Oxidative Addition

AUTHOR(S): Nova, Ainara; Erhardt, Stefan; Jasim, Naseralla A.;

Perutz, Robin N.; Macgregor, Stuart A.; McGrady, John

E.; Whitwood, Adrian C.

CORPORATE SOURCE: Department of Chemistry, University of York,

Heslington, York, Y010 5DD, UK

SOURCE: Journal of the American Chemical Society (2008),

130 (46), 15499-15511

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal LANGUAGE: English

OTHER SOURCE(S): CASREACT 149:576715

ABSTRACT:

A survey of computed mechanisms for C-F bond activation at the 4-position of pentafluoropyridine by the model zero-valent bis-phosphine complex, [Pt(PH3)(PH2Me)], reveals three quite distinct pathways leading to square-planar Pt(II) products. Direct oxidative addition leads to cis-[Pt(F)(4-C5NF4)(PH3)(PH2Me)] via a conventional 3-center transition state. This process competes with two different phosphine-assisted mechanisms in which C-F activation involves F transfer to a P center via novel 4-center transition The more accessible of the two phosphine-assisted processes involves concerted transfer of an alkyl group from P to the metal to give a Pt(alkyl) (fluorophosphine), trans-[Pt(Me) (4-C5NF4) (PH3) (PH2F)], analogs of which were observed exptl. The 2nd phosphine-assisted pathway sees F transfer to one of the phosphine ligands with formation of a metastable metallophosphorane intermediate from which either alkyl or F transfer to the metal is possible. Both Pt-fluoride and Pt(alkyl) (fluorophosphine) products are therefore accessible via this route. The calcns. highlight the central role of metallophosphorane species, either as intermediates or transition states, in aromatic C-F bond activation. The similar computed barriers for all three processes suggest that Pt-fluoride species should be accessible. confirmed exptl. by the reaction of [Pt(PR3)2] species (R = iso-Pr (iPr), cyclohexyl (Cy), and cyclopentyl (Cyp)) with 2, 3, 5-trifluoro-4-(trifluoromethyl)pyridine to give cis-[Pt(F) {2-C5NHF2(CF3)} (PR3)2]. These species subsequently convert to the trans-isomers, either thermally or photochem. The crystal structure of cis-[Pt(F) {2-C5NHF2(CF3)} (PiPr3)2] shows planar coordination at Pt with r(F-Pt) = 2.029(3) Å and $P(1)-Pt-P(2) = 109.10(3)^{\circ}$. The crystal structure of trans-[Pt(F) {2-C5NHF2(CF3)} (PCyp3)2] shows standard square-planar coordination at Pt with r(F-Pt) = 2.040(19) Å.

IT <u>1083009-53-3</u>

RL: PRP (Properties)

(DFT-calculated optimized geometry and energy; oxidative addition reaction of trifluoro(trifluoromethyl)pyridine with Pt bisphosphine complex via C-F bond activation)

RN 1083009-53-3 CAPLUS

CN Platinum, (fluoromethylphosphoranyl) (phosphine) (2, 3, 5, 6-tetrafluoro-4-pyridinyl)-, stereoisomer (CA INDEX NAME)

OS. CITING REF COUNT: 10

THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)
THERE ARE 72 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT 72 REFERENCE COUNT:

ANSWER 2 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN L8

ACCESSION NUMBER: 2008:1319649 CAPLUS

DOCUMENT NUMBER: 150:5876

TITLE: Computational Study of the Reaction of C6F6 with

[IrMe(PEt3)3]: Identification of a Phosphine-Assisted

C-F Activation Pathway via a Metallophosphorane

Intermediate

AUTHOR(S): Erhardt, Stefan; Macgregor, Stuart A.

School of Engineering and Physical Sciences, CORPORATE SOURCE:

> Heriot-Watt University, Edinburgh, EH14 4AS, UK Journal of the American Chemical Society (2008),

130 (46), 15490-15498

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal LANGUAGE: English

OTHER SOURCE(S): CASREACT 150:5876

ABSTRACT:

SOURCE:

D. functional theory calcus. were used to model the reaction of C6F6 with [IrMe(PEt3)3], which proceeds with both C-F and P-C bond activation to yield trans-[Ir(C6F5)(PEt3)2(PEt2F)], C2H4, and CH4. Using a model species, trans-[IrMe(PH3)2(PH2Et)], a low-energy mechanism involving nucleophilic attack of the electron-rich Ir metal center at C6F6 with displacement of fluoride was identified. A novel feature of this process is the capture of fluoride by a phosphine ligand to generate a metallophosphorane intermediate [Ir(C6F5)(Me)(PH3)2(PH2EtF)]. These events occur in a single step via a 4-centered transition state, in a process that the authors have termed phosphine-assisted C-F activation. Alternative mechanisms based on C-F activation via concerted oxidative addition or electron-transfer processes proved less favorable. From the metallophosphorane intermediate the formation of the final products can be accounted for by facile Et group transfer from P to Ir followed by β -H elimination of ethene and reductive elimination of The interpretation of phosphine-assisted C-F activation in terms of nucleophilic attack is supported by the reduced activation barriers computed with the more electron-rich model reactant trans-[IrMe(PMe3)2(PMe2Et)] and the higher barriers found with lesser fluorinated arenes. Reactivity patterns for a range of fluoroarenes indicate the dominance of the presence of ortho-F substituents in promoting phosphine-assisted C-F activation, and an anal. of the charge distribution and transition state geometries indicates that this process is controlled by the strength of the Ir-aryl bond that is being formed.

1083252-62-3 IT

RL: PRP (Properties)

(DFT calcn. of the reaction of hexafluorobenzene with methyltris(triethylphosphine)iridium to identify a phosphine-assisted C-F activation pathway via a metallophosphorane intermediate)

1083252-62-3 CAPLUS RN

CN Iridium, methyl (2, 3, 4, 5, 6-

pentafluorophenyl) (triethylfluorophosphoranyl) bis (triethylphosphine)-,

(SP-5-34)- (CA INDEX NAME)

IT <u>1083252-89-4</u> <u>1083252-95-2</u> <u>1083253-01-3</u>

RL: PRP (Properties)

(calculated optimized geometry and energy; DFT calcn. of the reaction of hexafluorobenzene with methyltris(triethylphosphine)iridium to identify a phosphine-assisted C-F activation pathway via a metallophosphorane intermediate)

RN 1083252-89-4 CAPLUS

CN Iridium, (ethylfluorodimethylphosphoranyl)methyl(2, 3, 4, 5, 6-pentafluorophenyl)bis(trimethylphosphine)-, (SP-5-34)- (CA INDEX NAME)

RN 1083252-95-2 CAPLUS

CN Iridium, chloro(ethylfluorophosphoranyl-kP) (2, 3, 4, 5, 6-pentafluorophenyl)bis(phosphine)-, (SP-5-42)- (CA INDEX NAME)

RN 1083253-01-3 CAPLUS

CN Iridium, (ethylfluorophosphoranyl-kP)methyl(2,3,4,5,6-pentafluorophenyl)bis(phosphine)-, (SP-5-34)- (CA INDEX NAME)

$$\begin{array}{c} & & & & & \\ & & & & \\ F & & & \\ \hline F & &$$

OS. CITING REF COUNT: THERE ARE 8 CAPLUS RECORDS THAT CITE THIS RECORD 8

(8 CITINGS)

THERE ARE 96 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT REFERENCE COUNT: 96

L8 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2008:547396 CAPLUS

DOCUMENT NUMBER: 149:166560

TITLE: Isolation of the first Li/halogen phosphinidenoid

transition-metal complex

AUTHOR(S): Oezbolat, Aysel; von Frantzius, Gerd; Hoffbauer,

Wilfried; Streubel, Rainer

CORPORATE SOURCE: Institut fuer Anorganische Chemie der Rheinischen

Friedrich-Wilhelms-Universitaet Bonn, Bonn, 53121,

Germany

SOURCE: Dalton Transactions (2008), (20), 2674-2676

CODEN: DTARAF; ISSN: 1477-9226

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal LANGUAGE: English

OTHER SOURCE(S): CASREACT 149:166560

GRAPHIC IMAGE:

ABSTRACT:

The 1st Li/halogen phosphinidenoid transition-metal complex (I) was isolates and characterized as well as the reporting of low-temperature solution NMR, MAS NMR expts., DFT structures and calculated NMR chemical shifts.

IT 1035693-81-2 1035693-82-3

RL: PRP (Properties)

(mol. structure from DFT calcns. as model for tungsten carbonyl lithium fluorine phosphinidenoid complex)

RN 1035693-81-2 CAPLUS

CN Lithium(1+), (1, 4, 7, 10-tetraoxacyclododecane-

 κ_{01} , κ_{04} , κ_{07} , κ_{010}) -, (T-4) -,

pentacarbonyl (P-methylphosphinous fluoridato-kP) tungstate (1-) (1:1)

(CA INDEX NAME)

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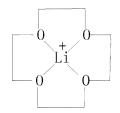
CRN 1035693-80-1 CMF C6 H3 F O5 P W

CCI CCS

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0 = C \\
Me^{-P} \\
C = 0
\end{array}$$

CM2

CRN 57448-31-4 **CMF** C8 H16 Li 04 CCI CCS



RN

1035693-82-3 CAPLUS Lithium, [μ -(P-methylphosphinous CN fluoridato-κΡ:κΡ)] (pentacarbonyltungsten) (1, 4, 7, 10tetraoxacyclododecane- $\kappa 01$, $\kappa 04$, $\kappa 07$, $\kappa 010$) - (CA INDEX NAME)

IT 1035693-79-8P

> RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (preparation and optimized mol. structure from DFT calcns. of)

1035693-79-8 CAPLUS RN

Lithium, $[\mu-[P-[bis(trimethylsily1)methyl]]$ phosphinous CN fluoridato-κΡ:κΡ]] (pentacarbonyltungsten) (1, 4, 7, 10tetraoxacyclododecane-κ01, κ04, κ07, κ010)- (CA INDEX NAME)

30

REFERENCE COUNT:

THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ANSWER 4 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN L8

ACCESSION NUMBER: 2007:631330 CAPLUS

DOCUMENT NUMBER: 148:538342

TITLE: Gas phase FT ICR investigation of the production of

phosphoranides and ion chemistry of

tris(trifluoromethyl)phosphine Kanawati, B.; Wanczek, K. P.

Department of Physical and Inorganic Chemistry, CORPORATE SOURCE:

University of Bremen, Bremen, Germany

SOURCE: International Journal of Mass Spectrometry (2007),

264 (2-3), 164-174

CODEN: IMSPF8; ISSN: 1387-3806

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal LANGUAGE: English

ABSTRACT:

AUTHOR(S):

In a long cylindrical ICR cell the ion chemical of tris(trifluoromethyl)phosphine The only major neg. primary ion, produced by dissociative electron attachment is the phosphide ion (CF3)2P-, which reacts at elevated kinetic energy with the neutral mols. at 2 + 10-7 m bar to produce three phosphoranides: CF3PF3-, (CF3)2PF2-, and (CF3)3PF-. Simultaneously, three minor ions CF3-, F-, and C2F3- are formed by self-collision-induced dissociation Ion-mol. reactions between CF3- and (CF3)3P also were studied. Pos. ions form phosphonium ions and a diphosphonium product ion, (CF3)2P-P(CF3)3+, whereas no P-P bond is observed with neg. ions. All the structures and reaction pathways were studied theor. with the aid of DFT calcns. The results are in excellent agreement with the expts. The electron affinity of

tris(trifluoromethyl)phosphine as EA((CF3)3P) = 22.6 kcal/mol was calculated

ΙT 1023674-90-9

RL: PRP (Properties)

(DFT-calculated optimized geometry and energy; gas phase FT ICR investigation of the production of phosphoranides and ion chemical of tris(trifluoromethyl)phosphine)

RN 1023674-90-9 CAPLUS

Phosphorane, fluorotris(trifluoromethyl)-, ion(1-) (CA INDEX NAME) CN

OS. CITING REF COUNT: 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD

(3 CITINGS)

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 2006:208544 CAPLUS

DOCUMENT NUMBER: 146:62790

TITLE: Splitting the phosphorus bridge of

7-phosphanorbornadiene complexes by fluoride ion

AUTHOR(S): Compain, Carine; Mathey, Francois

CORPORATE SOURCE: UCR-CNRS Joint Research Chemistry Laboratory,

Department of Chemistry, University of California

Riverside, CA, USA

SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie

(2006), 632(3), 421-424

CODEN: ZAACAB; ISSN: **00**44-2313 Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal LANGUAGE: English

OTHER SOURCE(S): CASREACT 146:62790

ABSTRACT:

PUBLISHER:

The reaction of fluoride ion with 7-phosphanorbornadiene P-W(CO)5 complexes yields fluorophosphido complexes which, in turn, can attack a second mol. of 7-phosphanorbornadiene to give a fluorobiphosphine complex. The corresponding anion displays a huge P-P coupling. The structure of the anionic chromium analog has been investigated by DFT calcns. The P-P bond is relatively short at 2.20 Å and displays a huge polarity suggesting an interesting chemical When the 7-phosphanorbornadiene P-substituent is 2-chloroethyl, the attack of the fluoride ion is followed by a cyclization and a reductive dimerization leading to the first known biphosphirane complex.

IT 916771-12-5

RL: PRP (Properties)

(mol. structure calcn.; cleavage of phosphorus bridge of phosphanorbornadiene tungsten carbonyl complex by fluoride ion)

RN 916771-12-5 CAPLUS

CN Chromate(1-), pentacarbonyl(methylphosphinous fluoridato-kP)-, (OC-6-22)- (CA INDEX NAME)

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C = 0 \\
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0 = C - Cr \frac{0}{C} = 0 \\
Me - P - C = 0
\end{array}$$

$$\begin{array}{c|c}
C = 0 \\
C = 0
\end{array}$$

OS. CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD

(5 CITINGS)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2010 ACS on STN

ACCESSION NUMBER: 1980:549603 CAPLUS

DOCUMENT NUMBER: 93:149603

ORIGINAL REFERENCE NO.: 93:23831a, 23834a

TITLE: Hydroxyphosphorane intermediates in substitution

reactions at phosphorus in acyclic

phosphonofluoridates: evidence from nuclear magnetic

resonance

AUTHOR(S): Granoth, Itshak; Segall, Yoffi; Waysbort, Daniel;

Shirin, Ezra; Leader, Haim

CORPORATE SOURCE: Israel Inst. Biol. Res., Ness-Ziona, 70400, Israel

SOURCE: Journal of the American Chemical Society (1980),

102(13), 4523-5

CODEN: JACSAT; ISSN: **000**2-7863

DOCUMENT TYPE: Journal LANGUAGE: English

ABSTRACT:

MeP(0)F2 (I) reacted with RNH2 (R = Ph, Bu) to give MeP(0)FNHR (II) in surprisingly slow reactions. IH and 31P NMR evidence is consistent with formation of a small concentration of phosphorane intermediate MePF2(0-)NH2R+ (III), which is in equilibrium with I and participates in an F-exchange process. The equilibrium involving I and III (R = Bu) is established by starting from either I and BuNH2 or II (R = Bu) and anhydrous HF.

IT 74963-93-2P

RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)

RN 74963-93-2 CAPLUS

CN Phosphate(1-), difluorohydroxymethylbis(benzenaminato)-, hydrogen (9CI) (CA INDEX NAME)

● H⁺

OS. CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

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FILE HOME

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USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Dec 2009

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L4
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L5
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L6
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                D QUE L7 STAT
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                                   FLUOROALKYLPHOSPHATE AND DYE?
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                           PLU=ON
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L12
              O SEA ABB=ON
                           PLU=ON L11 AND DYES/SC
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FILE COVERS 1907 - 18 Mar 2010 VOL 152 ISS 12 FILE LAST UPDATED: 17 Mar 2010 (20100317/ED) REVISED CLASS FIELDS (/NCL) LAST RELOADED: Dec 2009 USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Dec 2009

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This file contains CAS Registry Numbers for easy and accurate substance identification.

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DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-5. 10